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File 5:Biosis Previews(R) 1969-2004/Mar W1
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Set	Items	Description
Set	Items	Description
S1	154	AU='LIU QIANG'
S2	7054	ZINC()FINGER
S3	7	S1 AND S2
S4	0	DRSNLTR AND TSGHLSR AND RSDHLSR
S5	0	DSNLTR

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3/7/1

DIALOG(R)File 5:Biosis Previews(R)
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0014165006 BIOSIS NO.: 200300122116

Methods of using randomized libraries of zinc finger proteins
for the identification of gene function

AUTHOR: Case Casey C (Reprint); Liu Qiang; Rebar Edward J; Wolffe
Alan P

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JOURNAL: Official Gazette of the United States Patent and Trademark Office
Patents 1266 (1): Jan. 7, 2003 2003

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ISSN: 0098-1133 (ISSN print)

DOCUMENT TYPE: Patent

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: The present invention relates to methods of using libraries of
randomized zinc finger proteins to identify genes associated
with selected phenotypes.

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DIALOG(R)File 5:Biosis Previews(R)
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0013591660 BIOSIS NO.: 200200185171

Validated zinc finger protein designs for all 16 GNN DNA
triplet targets

AUTHOR: Liu Qiang; Xia ZhenQin; Case Casey C (Reprint

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JOURNAL: Journal of Biological Chemistry 277 (6): p3850-3856 February 8,
2002 2002

MEDIUM: print

ISSN: 0021-9258

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: The Cys2-His2-type zinc finger DNA-binding proteins

can be engineered to bind specifically to many different DNA sequences. A single %%%zinc%% %%%finger%% typically binds to a 3-4-base pair DNA subsite. One strategy for design is to identify highly specific fingers that recognize each of the 64 possible DNA triplets. We started with a subgroup of the 64 triplets, the GNN-binding fingers. The GNN-binding fingers have been examined in several studies, but previous studies did not produce specific fingers for all of the 16 GNN triplets. These previous studies did not provide any information on the possible positional or context effects on the performance of these fingers. To identify the most specific design and take the possible positional effects into consideration, we did a large-scale site selection experiment on our GNN designs. From this study, we identified very specific fingers for 14 of the 16 GNN triplets, demonstrating for the first time a clear positional dependence for many of the designs. Further systematic specificity study reveals that the in vivo functionality of these %%%zinc%% %%%finger%% proteins in a reporter assay depends on their binding affinities to their target sequences, thus giving a better understanding of how these %%%zinc%% %%%finger%% proteins might function inside cells.

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0013256071 BIOSIS NO.: 200100427910

Regulation of the endogenous VEGF-A chromosomal locus using designed %%%zinc%% %%%finger%% proteins

AUTHOR: Liu Pei-Qi (Reprint); Rebar Edward J (Reprint); Zhang Lei (Reprint); %%%Liu Qiang%% (Reprint); Jamieson Andrew C (Reprint); Liang Yuxin (Reprint); Qi Hong (Reprint); Li Pei-Xiang (Reprint); Chen Bingliang (Reprint); Mendel Matthew C (Reprint); Zhong Xiaohong (Reprint); Lee Ya-Li (Reprint); Eisenberg Steve (Reprint); Spratt S Kaye (Reprint); Case Casey C (Reprint); Wolffe Alan P (Reprint)

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JOURNAL: Biochemistry and Cell Biology 79 (3): p377 2001 2001

MEDIUM: print

CONFERENCE/MEETING: 22nd Annual West Coast Chromatin and Chromosomes Conference Pacific Grove, California, USA December 07-10, 2000; 20001207

ISSN: 0829-8211

DOCUMENT TYPE: Meeting; Meeting Abstract

RECORD TYPE: Citation

LANGUAGE: English

3/7/4

DIALOG(R)File 5:Biosis Previews(R)
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0013256047 BIOSIS NO.: 200100427886

Synthetic %%%zinc%% %%%finger%% transcription factor action at an endogenous chromosomal site: Activation of the human erythropoietin gene

AUTHOR: Zhang Lei (Reprint); Spratt S Kaye (Reprint); %%%Liu Qiang%% (Reprint); Johnstone Brian (Reprint); Qi Hong (Reprint); Raschke Eva E (Reprint); Jamieson Andrew C (Reprint); Rebar Edward J (Reprint); Wolffe Alan P (Reprint); Case Casey C (Reprint)

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Boulevard, Suite A100, Richmond, CA, 94804, USA**USA
JOURNAL: Biochemistry and Cell Biology 79 (3): p365 2001 2001
MEDIUM: print
CONFERENCE/MEETING: 22nd Annual West Coast Chromatin and Chromosomes
Conference Pacific Grove, California, USA December 07-10, 2000; 20001207
ISSN: 0829-8211
DOCUMENT TYPE: Meeting; Meeting Abstract
RECORD TYPE: Citation
LANGUAGE: English

3/7/5

DIALOG(R)File 5:Biosis Previews(R)
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0013072090 BIOSIS NO.: 200100243929

Regulation of an endogenous locus using a panel of designed ***zinc***
finger proteins targeted to accessible chromatin regions:

Activation of vascular endothelial growth factor A

AUTHOR: Liu Pei-Qi; Rebar Edward J; Zhang Lei; ***Liu Qiang***; Jamieson
Andrew C; Liang Yuxin; Qi Hong; Li Pei-Xiang; Chen Bingliang; Mendel
Matthew C; Zhong Xiaohong; Lee Ya-Li; Eisenberg Stephen P; Spratt S Kaye;
Case Casey C; Wolffe Alan P (Reprint

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JOURNAL: Journal of Biological Chemistry 276 (14): p11323-11334 April 6,
2001 2001

MEDIUM: print

ISSN: 0021-9258

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: We have mapped conserved regions of enhanced DNase I
accessibility within the endogenous chromosomal locus of vascular
endothelial growth factor A (VEGF-A). Synthetic ***zinc*** ***finger***
protein (ZFP) transcription factors were designed to target DNA sequences
contained within the DNase I-hypersensitive regions. These ZFPs, when
fused to either VP16 or p65 transcriptional activation domains, were able
to activate expression of the VEGF-A gene as assayed by mRNA accumulation
and VEGF-A protein secretion through a range exceeding that induced by
hypoxic stress. Importantly, multiple splice variants of VEGF-A mRNA with
defined physiological functions were induced by a single engineered ZFP
transcription factor. We present evidence for an enhanced activation of
VEGF-A gene transcription by ZFP transcription factors fused to VP16 and
p65 targeted to two distinct chromosomal sites >500 base pairs upstream
or downstream of the transcription start site. Our strategy provides a
novel approach for dissecting the requirements for gene regulation at a
distance without altering the DNA sequence of the endogenous target
locus.

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DIALOG(R)File 5:Biosis Previews(R)
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0012855966 BIOSIS NO.: 200100027805

Synthetic **zinc** **finger** transcription factor action at an endogenous chromosomal site. Activation of the human erythropoietin gene
AUTHOR: Zhang Lei; Spratt S Kaye; **Liu Qiang**; Johnstone Brian; Qi Hong
; Raschke Eva E; Jamieson Andrew C; Rebar Edward J; Wolffe Alan P
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AUTHOR ADDRESS: Point Richmond Tech Center, Sangamo BioSciences Inc., 501
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JOURNAL: Journal of Biological Chemistry 275 (43): p33850-33860 October
27, 2000 2000

MEDIUM: print

ISSN: 0021-9258

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: We have targeted the activation of an endogenous chromosomal locus including the human erythropoietin gene using synthetic transcription factors. These transcription factors are targeted to particular DNA sequences in the 5'-flanking region of the erythropoietin gene through engineering of a **zinc** **finger** DNA binding domain. The DNA binding domain is linked to a VP16 transcriptional activation domain. We find that these synthetic transcription factors invariably activate transiently transfected templates in which sequences within the 5' flank of the erythropoietin gene are fused to a luciferase reporter. The efficiency of activation under these circumstances at a defined site is dependent on DNA binding affinity. In contrast, only a subset of these same **zinc** **finger** proteins is able to activate the endogenous chromosomal locus. The activity of these proteins is influenced by their capacity to gain access to their recognition elements within the chromatin infrastructure. **Zinc** **finger** transcription factors will provide a powerful tool to probe the determinants of chromatin accessibility and remodeling within endogenous chromosomal loci.

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0010960779 BIOSIS NO.: 199799594839

Design of polydactyl **zinc**-**finger** proteins for unique addressing within complex genomes

AUTHOR: **Liu Qiang**; Segal David J; Ghiara Jayant B; Barbas Carlos F
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JOURNAL: Proceedings of the National Academy of Sciences of the United
States of America 94 (11): p5525-5530 1997 1997

ISSN: 0027-8424

DOCUMENT TYPE: Article

RECORD TYPE: Abstract

LANGUAGE: English

ABSTRACT: Zinc-ringer proteins of the Cys-2-His-2 type represent a class of malleable DNA-binding proteins that may be selected to bind diverse sequences. Typically, **zinc**-**finger** proteins containing three **zinc**-**finger** domains, like the murine transcription factor

Zif268 and the human transcription factor Sp1, bind nine contiguous base pairs. To create a class of proteins that would be generally applicable to target unique sites within complex genomes, we have utilized structure-based modeling to design a polypeptide linker that fuses two three-ringer proteins. Two six-ringered proteins were created and demonstrated to bind 18 contiguous bp of DNA in a sequence-specific fashion. Expression of these proteins as fusions to activation or repression domains allows transcription to be specifically up- or down-modulated within human cells. Polydactyl %%%zinc%%-%%finger%% proteins should be broadly applicable as genome-specific transcriptional switches in gene therapy strategies and the development of novel transgenic plants and animals.

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